Experiment Accommodations Request Document

B.1 Introduction

This Experiment Accommodations Request Document (EARD) defines preliminary requests by the SET Experimenter to the SET Project concerning the unique information, Carrier accommodations and Carrier interfaces needed for the preparation and flight of the Experiment. The general plans for the handling of SET Experiments are defined in the SET SEARS document LWSSET-SPEC-001. The experimenter shall submit an initial EARD within one month of the experimenter kickoff meeting. The experimenter shall submit a preliminary EARD soon after the experiment preliminary design has started. The experimenter shall submit a final EARD 30 days prior to the Experiment Design Review. The EARD will be signed by the SET Project prior to the Experiment design review.

Upon signature of the EARD, the Experimenter agrees to meet all applicable requirements, (i.e. mechanical, electrical and thermal interfaces and deliverables, etc.) as specified in the SEARS document. The EARD is considered a Quality Record as defined by ISO-9000 and, as such, will become a controlled document within the NASA/GSFC LWS-SET Configuration Management Office.

B.2 Experimenter Information

Experiment Title: _____
_____

Experiment Principal Investigator (PI):_____

PI Contact Information (address, phone, email): _____

_____

_____

Experimenter Approval:

_____

Experiment PI Date

NASA Approval:

_____

LWS-SET Project Manager Date

B.3 Additional Experimenter Contact Information:

(if applicable; name, phone, email)

a) Flight Assurance:_____

b) Electrical Engineer:_____

c) Software Engineer:_____

d) Mechanical Engineer:_____

e) Thermal Engineer:_____

f) Other:_____

_____

B.4 General Experiment Type

Check all that apply:

____ Board ____ Box ____CEM

B.5 Desired Orbital Environment

B.5.1 Radiation/Environment Exposure Types and Levels required for experiment manifest: _____

B.5.2 Other Environments that May Impact Experiment Performance: _____

B.5.3 Field of View to Space Desired for investigation: _____

B.5.4 Shielding Issues: _____

B.5.5 Other Requirements/considerations: _____

B.6 Mechanical

B.6.1 Board Experiments

a) Number of single (3U) boards:

b) Number in top slots (exposed):

c) Is a double (6U) slot required? (Y/N)

d) Approximate weight of each board: (1) _____lbs (2) _____lbs (3)_____lbs *(add more as needed)*

e) Total Weight: _____lbs

f) Is a 0.010 inch thick aluminum cover adequate for radiation/environment exposure? (yes) _____ (no)

B.6.2 Box Experiments

(duplicate this section if more than one box)

a) Dimensions: X _____in, Y= _____in, Z=_____in

b) Weight: _____lbs

c) Attach points:

B.7 Power

B.7.1 Required Secondary Power & Voltages (see SEARS Table 5-1)

a) Voltages:

_____+3.3V _____+5.0V(digital) _____+5.0V(analog)

_____-5.0V _____+15.0V _____-15.0V

b) Approximate secondary power? _____Watts

B.7.2 Required Primary Power & Voltage

a) Will +28V primary power be utilized?

b) Approximate primary power? _____Watts

B.7.3 Total Power (Primary + Secondary)

a) Approximate Beginning-of-Life (BoL) Total Power (not to exceed 4W per board or 10W per box) _____Watts

b) Approximate End-of-Life (EoL) Total Power Draw: _____Watts

c) If EoL power is significantly different than BoL, explain:

B.7.4 Standby Power

a) Will the Experiment utilize the minimal power draw while in Standby mode (<100 mW for boards, <300 mW for boxes), or be powered OFF entirely?

b) Approximately what percentage of time can the Experiment tolerate being in standby or off mode?

B.8 Telemetry, Command and Data Handling

B.8.1 Analog Telemetry

a) Will the 2 analog signal telemetry ports (in addition to the thermistor/ dosimeter) be utilized?

b) If yes, describe the source(s) of the telemetry:

c) Will event triggering off of Experiment thermistor and/or dosimeter readings be required? Explain.

B.8.2 Serial Commands

a) Will Experiment commanding be necessary?

b) If yes, can the commanding be automated (tagged off of time, orbit position, and/or CEM data)? Explain.

c) What types of Experiment commands will be needed (serial, carrier, event, function)? Explain.

B.8.3 Serial Digital Telemetry

Briefly describe the volume, frequency, and type of telemetry to be sent to the Carrier?

B.8.4 CEM Requests:

a) What environments need to be measured? (e.g. induced electron, atomic oxygen, solar ultraviolet, and/or proton environment, cumulative dose)

b) What resolution (time, accuracy) is needed?

c) Are there constraints on CEM location relative to your Experiment?

d) Do you have any requirements for data monitors of and onboard triggering of operations from the CEM measurements?

B.9 Electrical Interconnect

a) Number of total electrical interconnects (ports) required (1 maximum per board/box):

b) Will the CMOS Interface (boards only) be utilized?

B.10 Flight Operations

B.10.1 Command & Telemetry Requirements

a) Will ground commanding (non-real time) be required? Explain type and frequency.

b) How frequently will Experiment telemetry need to be analyzed (i.e. retrieved from the Host provider)?

B.10.2 Mission Support Data Requirements

_____Attitude _____Ephemeris _____Other:

B.10.3 Expected On-orbit Lifetime

B.11 Thermal

B.11.1 Temperature Limits

Operating Temperature		**Non-Operating Temperature**		Storage Temperature	
Min	Max	Min	Max	Min	Max

B.11.2 Surface Coatings

Surface Description	**Solar Absorptance**		IR Emittance	
	BOL	EOL	BOL	EOL

B.11.3 Thermal Interface (Box Only)

Surface Description	**Interface Thermal Resistance (°C/W)**	Heat Flux Over Entire Footprint (Watts/cm^2)	Radiator Size (if applicable) (cm^2)

B.12 Environmental/I&T

a) Will batteries be used?

b) If yes, what capacity and size?

c) Briefly describe the Experimenter Ground Support Equipment you will utilize during Integration & Test.

d) Do you have special storage and handling requirements (e.g. cleanroom requirements, duration, nitrogen purge, temperature control, desiccation)?

e) Will you be providing an experiment ETU for testing and sustaining engineering at GSFC?

B.13 Other

Are there any other considerations or requests the Project should be aware of?